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EDUCATIONAL RESEARCH BULLETIN: ERB

NOVEMBER 9, 1960

COLLEGE OF EDUCATION
THE OHIO STATE UNIVERSITY

Vol. XXXIX, No. 8

EDUCATIONAL RESEARCH BULLETIN

(Entered in the United States Patent Office)

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PUBLISHED BY THE BUREAU OF EDUCATIONAL RESEARCH AND SERVICE, AS AN ORGAN OF THE COLLEGE OF EDUCATION, OHIO STATE UNIVERSITY, FOR THE SCHOOLS OF OHIO. EDITORIAL OFFICE, ROOM 173; BUSINESS OFFICE, ROOM 195, ARPS HALL, COLUMBUS 10, OHIO

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The Educational Research Bulletin is published monthly except during June, July, and August. Entered as Second-Class Matter, February 9, 1922, at the Post Office at Columbus, Ohio, under the Act of August 24, 1912. Accepted for mailing at specified rates of postage provided for in Section 1103, Act of October 3, 1917, authorized February 21, 1922.

Educational Research Bulletin

NOVEMBER 9, 1960
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Curriculum Research: Status, Needs, and Prospects

By A. HARRY PASSOW

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As a result of increased availability of funds and the growing sensitivity of educational workers at all levels to research needs, educational research has been growing rapidly in numerous areas. It is now time to take stock of curriculum research—its status, needs, and prospects. A brief paper must confine itself to recognizing the importance of such an appraisal and urging that it have breadth and depth. Griffiths' short publication, *Research in Educational Administration: an Appraisal and a Plan*[1] might serve as a prototype for a similar evaluation in the area of curriculum research. The author surveys the content and quality of research in this field, indicates its strengths and inadequacies, and proposes future directions to bypass or eliminate present shortcomings.

For those who have been concerned with extending research as the base for educational decision-making, with stimulating experimentation in schools, and with upgrading the quality of studies, the present situation seems to raise both despair and hope—despair, because of the echoes of perennial criticisms of curriculum research; hope, because there are many positive gains to be made. Coladarci's paper, presented at the International Conference on Educational Research in Tokyo, for example, reiterates the concern with research which "tends to be fragmentary, insufficiently programmatic, and insufficiently interdisciplinary."[2]

[1] New York: Bureau of Publications, Teachers College, Columbia University, 1959.
[2] "Current Concerns in American Educational Research," abridged in *AERA Newsletter*, XI (January, 1960), p. 4.

If the curriculum is defined as "all of the experiences that a learner has under the guidance of the school," then curriculum research must deal directly with the content, nature, and quality of these experiences. While much of the available research, whatever its quality, does deal with the broad area of education, relatively little seems to focus specifically on the curriculum in terms of learning experiences.

The funds made available through the National Defense Education Act have been of limited benefit to curriculum research. Only one section of the Act specifically mentions research. Title VII (involving $5,000,000 of a total $150,000,000 to be distributed in 1960) is concerned with "research and experimentation in more utilization of television, radio, motion pictures, and related media for educational purposes." While research may be possible under some of the other titles, it is neither required nor in any way encouraged. Financial assistance, grants, and loans are provided for program action; evaluation of these programs is not considered necessary. The United States Office of Education will also administer $3,200,000 for the Cooperative Research Program. According to the 1958 report on these projects, 133 contracts had been negotiated—53 in mental retardation and 80 dealing with other areas of education, including 13 in the development of students' special abilities. (The report noted that the National Science Foundation had estimated that in the same period $3,500,000,000 was expended for research and development in the physical sciences and less than 5 per cent of that amount for research and development in social science.)[3] In April, 1959, the Office of Education reported that the 196th contract had been signed. Of the sixteen new contracts only three were listed under curriculum. Others dealt with such areas as handicapped children, the mentally retarded, special abilities, staffing, television, and vocational education.

New York State appropriated $200,000 in 1958 to encourage experimentation in methods for increasing the depth and scope of the teaching of science and mathematics at all grade levels and for providing special opportunities for the talented. This amount has been doubled for the next fiscal year and the program has been broadened. Some of the studies which have been

[3] Clark, David L., and Scates, Alice Y. *Cooperative Research Projects, Fiscal 1958.* Washington, D. C.: U. S. Government Printing Office, 1959, p. ix. (Bulletin 1959, No. 18).

approved are aimed at measuring the content and level of experiences of youngsters. One project, for instance, seeks to develop new types of chemistry experiments and tests and to measure their effectiveness. Another compares the values of various materials and audio-visual techniques in teaching beginning reading.

There are varying estimates of the funds given by philanthropic foundations for educational research. The total is in the millions if it can be assumed that some portion of the estimated $700,000,000 granted for 1959 was for bona fide research rather than for the initiation of a particular program. Certainly, research funds from varied sources are now more readily available than in the past, although some shopping around is still necessary.

THE considerable interest in gifted students can be used to provide some estimates of the status of curriculum research. The percentage of increase in research in this area is phenomenal. California is one of several states that has established pilot studies on programs for gifted pupils; it appropriated $137,000 for a three-year study of programs for the gifted. Illinois and North Carolina have similar state-wide experimental programs. The North Central Association of Colleges and Secondary Schools has undertaken a project labeled "The Guidance and Motivation of Superior and Talented Secondary-School Students." Described as a "research and action service project," it has so far been primarily the latter, although research findings from other sources are being synthesized and disseminated.

The studies of the Horace Mann-Lincoln Institute's Talented Youth Project deal with administrative and instructional modifications, underachievement, creativity, and peer attitudes. Some of these studies are psychological, some administrative, and the rest curricular in the sense that they deal directly with what and how the students are learning. In one study several different mathematics programs are being tested to assess the effects of varied instructional procedures and content on attitudes toward mathematics and on mathematical achievements. In another, the possibilities of modifying instruction in order to overcome underachievement of gifted youngsters are being investigated. To assess the effects of various grouping patterns, data on intelligence, academic achievement, interest, work-study skills, creative writing, self-appraisal, friendship and leadership status, and attitudes

toward school and toward more or less endowed peers, have been collected for more than 2,300 students over a two-year period.

In the chapter on the gifted in the December, 1959, *Review of Educational Research,* twenty-eight items, dealing primarily with mathematics and science, are listed under "Curriculum Adaptation." A number of these refer to materials published in connection with a specific program and are not reports of research. The rest are references to surveys of school programs or descriptions of a specific adaptation.

A conference on research on the gifted was recently sponsored by the NEA Project on the Academically Talented Student. The three dozen participants represented numerous organizations actively engaged in research in this area. The published proceedings of the conference should be a useful summary of the work that is already under way or completed as well as provide a helpful guide to what needs to be done.

A survey of programs for improving school mathematics indicates that at least two dozen groups have been organized to upgrade mathematics instruction and content at all school levels. While many of these groups have produced new publications, they have been concerned primarily with development and preparation of teaching-learning materials, tryout of these materials, subsequent revision and refinement, and finally, the finished work. In general, the reorganization of subject-matter and the introduction of new materials which are prejudged seem to be mathematically and psychologically sound procedures. Although there is some concern with the ways in which students learn mathematics—methods of teaching, instructional materials that aid the learning process, the ways of providing for individual differences—there are very few depth studies comparable in any way to the creative ones out of which the arithmetic program of more than two generations ago was built. Today mathematicians, mathematics educators, and classroom teachers are revising the program without benefit of research hypotheses or evaluation.

As in mathematics, the research program in science education leaves much to be desired. Obourn notes a steady improvement in the design and rigor of the studies; yet, he charges: "The peripheral and fragmentary nature of some of the current unpatterned research in this area will not produce the sound data needed for the present and long-range improvement of teaching."[4]

[4] *Analysis of Research in the Teaching of Science, July 1955–July 1956.* Washington, D. C.: U. S. Government Printing Office, 1958, p. 49. (Bulletin 1958, No. 7).

In the analysis of research for 1956–57, Obourn and Koelesche insist that the need for good research studies in science education has never been more critical than at present when so many organizations and agencies want to anchor their long-range improvement plans to research findings.[5] New publications, films, and instructional materials are emerging, but they have an empirical rather than a research base. Here, too, there is a need for dealing with the broad unresolved issues which must be isolated, defined, hypothesized, and tested.

STIMULATED by the various professional groups, philanthropic foundations, and other agencies and organizations, many activities in educational research are currently under way. Curriculum research and educational research are not synonymous, however. A great deal of the research is concerned with facets of education which, significant though they may be, are remote from curriculum content and learning experiences. True, we need to know a great deal more about the dynamics of instruction, about school organization as it affects learning, about the teacher and his characteristics, about curriculum planning, and so forth. But even more, we need an understanding of the content and nature of learning experiences. Foshay has suggested that we must know more about the new tools, methods, and arrangements, not in terms of their own apparent value but rather as they affect student learning.[6]

The present status of curriculum research may be summarized as follows: While there is a marked increase in the quantity of studies being carried out, many questions about the content and nature of learning experiences have not been answered suitably or directly. Research continues to deal with fragmentary pieces rather than with the more basic problems of instruction and learning. As quantity increases, quality is still dubious. Even though there has been revision in content areas, new projects being tested in the schools and teaching aids—television, tapes, and machines—are being integrated into school programs without adequate concern for either evaluation or research.

Overall, this is perhaps too dreary a picture. When the nature, quantity, and quality of curriculum research in America is compared with that in Britain and Western Europe, the picture

[5] *Analysis of Research in the Teaching of Science, July 1956–July 1957.* Washington, D. C.: U. S. Government Printing Office, 1959. (Bulletin 1960, No. 2).

[6] "What Is the Message?" *Saturday Review,* XXXV (February 13, 1960), pp. 35, 58, 60–61.

is more encouraging. Indeed, there are many hopeful signs: classroom teachers and other staff members are becoming more and more concerned with careful evaluation of programs and practices; professional groups at state, regional, and national levels are more research-conscious than ever before; the large volume of sales of the series *What Research Says to the Teacher* indicates that a need is being filled. If we can now come to grips with some of the blocks to quality research, a major breakthrough is possible.

THE present needs in the area of curriculum research are apparent. Briefly, they deal with the nature of research undertaken, its design and organization, the supply of trained creative researchers, and the use that is made of such research.

Research is needed for developing and testing conceptual frameworks and theories that underlie curriculum building. The 1947 Conference on Curriculum Theory at Chicago was held in the belief "that curriculum development without curriculum theory is tragic and that curriculum theory without curriculum development denies the essential purpose of the theory."[7] The contribution of present research to the development of curriculum theory or even the relating of research to a theory has not been as significant as it might have been.

The flood of studies dealing with gifted children consists primarily of inquiries into the effectiveness of various kinds of administrative organizations with problems of achievement or attitudes. Relatively few deal with the learning processes of the academically talented and the instructional methods that are particularly appropriate for optimum learning by such youngsters. Curricular experiences and offerings need to be examined more carefully in terms of their total impact—not piecemeal—on the educational development of the gifted—not simply their academic achievement.

Needed are more comprehensive curriculum-research projects—an investigation, for example, of the total educational program as it affects the learning patterns of youngsters. Among a few researchers there has been the tendency to analyze a thin slice of some overriding problem. Comprehensive research plans

[7] Herrick, Virgil E., and Tyler, Ralph W., editors. *Toward Improved Curriculum Theory*. Chicago: University of Chicago Press, 1950, p. iii. (Supplementary Educational Monographs).

dealing with basic educational problems have not been undertaken in sufficient numbers. Even when the researcher has been concerned with broader and deeper learnings, the tools used to assess growth or change have usually been the traditional measures of achievement.

Also needed are more longitudinal studies. In looking over projects reported by both the Children's Bureau and the Office of Education Cooperative Research Program, one is struck by the fact that the studies usually cover periods of from only six months to a year or two. The number of longitudinal studies lasting for even as long as five years is relatively minute. By contrast, the New York City Elementary School Study of Child Growth and Educational Practices is focusing on both horizontal and longitudinal development of the youngsters from kindergarten through the sixth grade (1953–60). The study is dealing not only with the children's development patterns but also with the exploration of effective educational practices. The Career Pattern Study at the Horace Mann-Lincoln Institute calls for the examination of a twenty-year period of the subjects' lives to determine those factors, including the educational experiences, which affect vocational patterns and choices. Both of these studies should throw new light on curriculum offerings. It seems likely that long-range, longitudinal studies can yield data for demonstrating the permanency of changes. With more funds available, it may be possible to "think long" as well as "think big."

But to achieve quality research, it is necessary to overcome the serious shortage of trained personnel who can fill positions as research consultants, directors, and workers. Individuals with the necessary skill, insight, and understanding to conceive, organize, and direct complex curriculum studies must be discovered and their abilities developed. The identification of big and real educational problems involving the nature and quality of student learning, the design of fruitful research attacks on such problems, and the development of appropriate instruments for measuring and evaluating—all require skills and understandings derived from experiences and training which are different from the clinical training of the psychological researcher or the preparation of the physical-science researcher.

The dissemination, synthesis, and implementation of research in more effective fashion poses another problem. The *Review of*

Educational Research serves primarily to report the existence of studies which can then be read in detail. But here again, the nature of the preparation of the reviews requires that considerable personal judgment be exercised in screening studies and in limiting items to a specified number of pages. One assumes that the best of the research has been located and reviewed. How many other studies were examined and rejected is seldom indicated. In the Talented Youth Project, we have been putting literature into digest form for seven years. We have more than two thousand McBee Keysort cards with, at this stage, an indeterminate number dealing with research either completed or under way. The December, 1959, *Review* chapter on the gifted contains 251 references. Dozens of papers and digests in our files were not included in the chapter and some that we do not have were included. Were the former examined and rejected by Fliegler and Bish? Also worth noting is the fact that *Review* authors tend to avoid criticism of research except at a general level. Seldom are specific studies analyzed or criticized for inadequacies in design or methodology.

Thus, there is a need for a more complete, current, and cumulative digest of both ongoing and completed research. We have, as yet, found no practical way of sharing our digests with individuals other than those who come into the office to use our files. Synthesis of research which will advance the building of a conceptual framework for identifying, describing, and educating gifted children is an area in search of a developer. *What Research Says to the Teacher* is a very useful means of interpreting and disseminating findings to the practitioner. The sales volume suggests that these pamphlets are getting into the hands of classroom teachers. But how the pamphlets have affected curriculum development is a question which must still be answered.

WHAT, then, are the prospects for curriculum research? A proposal has been made by Hanna and Tyler for a national curriculum commission. In his 1951 Sachs lectures, Thomas Briggs called for the establishment of a national curriculum laboratory. The Commission on the Experimental Study of the Utilization of the Staff in the Secondary School already has made proposals for a new approach to secondary education which would require reorganization to large-group instruction, individual study, and small-group discussion. The Ford Foundation has poured millions of dollars into "demonstrations" of the feasibility

of certain kinds of practices and programs. There are and will be funds to underwrite major changes in organization and structure which have implications for the curriculum. But who will evaluate the effectiveness of these practices? How can adequate research be done so that demonstrations become valid experiments?

Obviously, more competent and imaginative persons with research orientations are needed. Programs for the training of researchers who understand and can deal with curriculum problems in field situations will have to be multiplied. The pilot work of the Illinois Curriculum Program with its research clinics can be extended. The New York City Bureaus of Curriculum and Educational Research have demonstrated the feasibility and value of "borrowing" teachers and supervisors to work on specific studies and then return to their former positions. This research training has been useful to the Bureaus and has yielded continuing dividends to the programs. The growing list of former members of the Horace Mann-Lincoln Institute indicates the importance of assistantships for research training.

The promise of action research as a means of improving the curriculum and attacking significant curriculum problems within a larger framework has yet to burgeon into practical accomplishment. Consequently, the concept of action research has been criticized and disparaged, perhaps unjustly at times. The weaknesses and inadequacies must often be attributed to the lack of leadership in training competent researchers at the local level and in providing the broad framework within which pieces of research can be integrated.

In spite of all the difficulties, however, prospects are generally good. The future is promising because of the increasing awareness of the need for research which deals directly and specifically with the nature and quality of learning experiences—curriculum research—rather than studies which are a by-product of more general educational inquiries. Nevertheless, researchers seem to be naturally pessimistic: so often they observe shortages and inadequacies without noting signs of progress.

There are a number of embryonic undertakings which may have an impact on the kind and quality of curriculum research that may be conducted. A Council for Educational Research has been established. It should be helpful in co-ordinating and stimulating research. The opportunity for research leaders to pool their thinking, to share research findings in process, and to focus

[*Continued on page 224*]

Non-Written Figuring: Its Role in the Elementary-School Curriculum[1]

By WILLIAM C. WOLF

Mr. Wolf is assistant professor in the Department of Education, Ohio State University.

IN THE daily activities of children and adults, situations calling for arithmetical computation often arise. These may vary from the six-year-old's effort to determine how many two-for-a-penny pieces of candy he should receive for a nickel to the adult's attempt to total a grocery bill as he approaches the check-out counter in a supermarket. For the computation needed in such situations, the pencil-and-paper methods which comprise almost all arithmetic instruction are inadequate, resulting in the often observed "writing in the air," the manipulation of fingers, and perplexed looks. To solve such daily problems, instruction in oral arithmetic seems necessary. In addition, authorities in arithmetic teaching believe that oral instruction helps pupils understand numerical operations. Why, then, are oral aspects of the subject seldom included in current elementary-school instruction?

Oral arithmetic, meaning non-written figuring, has had a most erratic history. Understandably, it long preceded written computation, which came into its own with the advent of writing numbers. With the evolution of numerical systems came ways and means of perpetuating them in the various societies. One such means was linked to the development of the tools of writing—notably, the easily obtained quill and ink and later, the mass-produced, inexpensive pencil and paper. Another factor which perpetuated existing systems undoubtedly was the need to educate the young. Once a numerical system was firmly entrenched in the thinking and daily life of a society, its maintenance involved stereotyped routines. Specific aspects of the system needed to be taught—hence, the introduction of prepared materials to aid instruction. Such materials, in the hands of inadequately trained "teachers" frequently became guides rather than aids. Consequently, "pencil and paper thinking" began to flourish; oral computation was relegated to a minor role in the teaching of what came to be known in our society as arithmetic.

[1] This paper is based on the writer's doctoral dissertation, "An Evaluation of Non-Pencil-and-Paper Materials Prepared for Use in the Elementary School Arithmetic Program." 1959. State University of Iowa.

The widespread adoption of a written rather than an oral approach to the teaching of arithmetic during the past two or three centuries was not without incident. According to David E. Smith, about the beginning of the nineteenth century Pestalozzi in Europe and Warren Colburn in this country had much to do with the "great revival" of mental arithmetic, "in each case as a protest against the intellectual sluggishness, lack of reasoning, and slowness of operation of the old written arithmetic."[2] However, this renewed stress upon mental arithmetic was so vigorous that the subsequent reaction caused it to lose considerable standing. One need only examine the professional literature and the arithmetic textbooks presently in use in elementary-school classrooms to realize that oral arithmetic has hardly begun to recover from this reaction.

In the past students of elementary arithmetic have been aware of the imbalance in the instructional program. Smith, as early as 1909, pointed out that "the ordinary purchase of household supplies requires a practical ability in the mental arithmetic of daily life, and this ability comes to the mind only through repeated exercise." Citing research done by C. W. Stone, he declared that

> . . . it is a fair inference from statistical investigations that a person may be rapid and accurate in written work but slow and uncertain in oral solutions. Therefore it will not do, from the practical standpoint, to drill children only in written arithmetic if we expect them to be reasonably ready in purely mental work.[3]

E. L. Thorndike, in 1922, expressed an interest in the revival of oral arithmetic in the classroom. He stated that "the common practice of either having no use made of paper and pencil or having all computations and even much verbal analysis written out elaborately for examination is unfavorable for learning."[4] He recognized that life demands both kinds of arithmetical knowledge and skill.

Today, more and more, educators are pondering a question raised over four decades ago: What should be the nature of this mental work? During the interim, few educators have concerned themselves with oral arithmetic and its inclusion in the elementary-school arithmetic program. Thus few materials are available that teachers could use if and when a revival of oral arithmetic

[2] *The Teaching of Arithmetic.* Boston: Ginn and Company, 1909, p. 55.
[3] *Ibid.*, p. 55.
[4] *The Psychology of Arithmetic.* New York: Macmillan Company, p. 263.

should occur. The task at hand appears to be to devise and evaluate materials suitable for such a program in the elementary-school grades. The second portion of this paper elaborates upon the development and experimental application of such materials.

It is unlikely that in-service training procedures and textbooks will be used to acquaint teachers with, and to encourage them to develop, an effective program of instruction stressing oral arithmetic. Since the time alloted to arithmetic instruction in the elementary-school curriculum is relatively short, a strong case could be made for the preparation of oral-instruction materials to be used by classroom teachers. These would allow teachers to use available time more effectively than traditional classroom procedures without sacrificing pupil achievement. The problem is to find the methods that are most successful but yet do not require much instructional time and do not depend upon classroom teachers for the development of materials and teaching procedures.

In order to determine the "best" oral procedures, the writer spent more than eighteen months acquiring and preparing materials, presenting these to small groups and to entire classrooms of elementary-school children, evaluating the results of these presentations, and then revising the lessons. This work was carried on until a series of eighteen oral-arithmetic lessons were produced which, within the framework of the research undertaken, were considered "best" in terms of pupil achievement and interest. The series included lessons pertaining to the four fundamental processes and addition and subtraction of fractions. The eighteen lessons were geared to the capabilities of fourth- and fifth-grade children, but certain ones seemed applicable as well to various third- and sixth-grade classroom situations.

Next the writer attempted to solve the problem of how to teach these "best" oral computational procedures to children in a minimum amount of time. Two proposals were offered as possible solutions: the use of filmed presentations supplemented by the classroom teacher, or lessons prepared for and presented entirely by him. Because of limited time and money, it was impossible to use all eighteen lessons of the series to investigate the two proposals; accordingly, five lessons on addition were selected for this purpose.

To explore the first proposal, a classroom situation was reconstructed in the motion-picture studio at the State University

of Iowa and the five lessons were filmed. To explore the second, corresponding printed materials were prepared to be given to the teachers participating in the experiment. The five lessons in each series were presented to ten randomly selected fourth- and fifth-grade groups from three midwestern communities as a supplement to regular classroom teaching. Five of these classroom groups represented the film variable, three the printed-materials variable, and two the experimental-control variable. In all, 280 children were involved in the study.

INCLUDED within the scope of the five lessons were suggested procedures for motivating the students in each learning situation, the actual presentation either by means of film or printed materials, and supplementary follow-up teaching procedures. A better understanding of these lessons can be obtained by examining more closely the first learning situation—in this case a filmed presentation. This lesson was constructed specifically to develop two non-written addition methods—an "adding-tens-one-at-a-time method" and an "adding-all-tens-at-once method." The other four lessons in the series were constructed similarly.

In preparing the class for the film that they would see, the teacher discussed with them the importance of being able to add without pencil and paper. As a start they tried some mental addition on their own.

The second part of the lesson was the actual presentation of the film showing a teacher and several fourth-grade children who were attempting to solve a simple addition problem orally. To introduce the subject, the film teacher posed this problem:

> At the supermarket I purchased three items: a loaf of bread costing 26¢, a jar of pickles costing 39¢, and a quart of milk costing 21¢. As I neared the check-out clerk, I reached in my pocket and found I had three quarters and two dimes. I thought, "Is that enough money to pay for the three items?" Was it?

The pupils' preliminary attempts to solve the problem resulted in disagreement and confusion. The teacher, using a Socratic procedure, then broke down the figures and developed two methods of solution with the pupils: "adding-tens-one-at-a-time" and the more rapid and efficient "adding-tens-all-at-once." In both cases he detailed each step of the problem. As the concluding activity of this part of the lesson, the advantages and limitations of each method were briefly considered.

The final part, supplementing the film, was presented by the classroom teacher. The children worked with four problems, using both methods of solution. In each case the child indicated the steps involved. The advantages and disadvantages of each method were then discussed. The aim throughout was to try to determine the most efficient procedures for solution.

Before and after the five lessons were presented, both objective test data and subjective questionnaire data were gathered in order to evaluate the effectiveness of the two proposed procedures. The objective test consisted of two parts. The first, designated Part A, included thirty-two addition examples (two practice and thirty test items) which were presented verbally on tape to

TABLE I

PRE-TEST, FOLLOW-UP TEST, AND ADJUSTED MEAN SCORES FOR TOTAL TEST AND PART A*

TEST	ADMINISTRATION	MEAN SCORES		
		Film Treatment	Printed-Materials Treatment	Control Treatment
(1)	(2)	(3)	(4)	(5)
Total test	Pre-test	34.45	34.07	36.06
	Follow-up test	41.84	39.94	39.21
	Adjusted	40.66	38.52	36.56
Part A	Pre-test	13.78	13.24	13.48
	Follow-up test	17.51	16.53	15.63
	Adjusted	16.70	15.61	15.17

*No adjusted-treatment mean values were obtained for Part B test scores, since the obtained F-value indicated no significant differences among treatments.

the children. The second, designated Part B, included thirty-five addition exercises (ten problems and twenty-five examples) which the children could solve using any procedure or procedures they wished. By combining Parts A and B, a total-test score was obtained. Coefficients of reliability for Part A (.82) and for Part B (.77) suggested that the test, as used in this experiment, was a reliable instrument. It was administered to all those in the two experimental groups (film and printed-materials) and in the control group before and after presentation of the lessons.

Since direct selection of the subjects to be included in each treatment was not possible, allowance had to be made for initial differences which might prejudice the results. The analysis of covariance was used to achieve statistical control of these differences among the classroom groups.

Table I reports the original mean scores (pre-test and follow-up test) and the adjusted mean scores (obtained after covariance) for the total test and for Part A.

Data for the fourth- and fifth-grade groups in the experimental treatments were analyzed separately because there was no fifth grade in the control treatment. The sums of squares and products of the total-test scores, the Part A scores, and the Part B scores for the fourth-grade group are summarized in Tables II and III, respectively; the total-test scores for the fifth-grade group, in Table IV.

TABLE II

SUMS OF SQUARES AND PRODUCTS FOR TOTAL-TEST SCORES, FOURTH GRADE

Sources	df	ss_x	SP	ss_y
(1)	(2)	(3)	(4)	(5)
Treatments	2	1,394.89	236.71	120.66
Groups within treatments	4	3,360.11	2,061.02	1,401.24
Subjects within groups	187	13,568.59	10,747.85	16,859.91
Totals	193	18,323.59	13,045.58	18,381.81

TABLE III

SUMS OF SQUARES AND PRODUCTS FOR PARTS A AND B, FOURTH GRADE

Sources	df	Part A			Part B		
		ss_x	SP	ss_y	ss_x	SP	ss_y
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatments	2	94.16	−13.18	28.60	742.10	295.45	146.39
Groups within treatments	4	365.34	214.23	230.96	807.49	523.65	461.83
Subjects within groups	187	3,167.33	2,114.14	3,896.42	6,478.43	3,882.80	6,294.30
Totals	193	3,626.83	2,315.19	4,155.98	8,028.02	4,701.90	6,902.52

TABLE IV

SUMS OF SQUARES AND PRODUCTS FOR TOTAL-TEST SCORES, FIFTH GRADE

Sources	df	ss_x	SP	ss_y
(1)	(2)	(3)	(4)	(5)
Treatments	1	193.30	155.24	124.67
Subjects within treatments	82	8,981.12	6,398.68	8,002.32
Totals	83	9,174.42	6,553.92	8,126.99

An analysis of the data in the tables indicates significant differences between the fourth grade–film treatment mean and the experimental control–treatment mean for both the total-test

score and the Part A score. No significant differences were obtained between the film-treatment mean and the printed materials–treatment mean or the printed materials–treatment mean and the experimental control–treatment mean on any part of the test. Similarly, no significant differences were obtained between fifth grade–treatment means on the total-test scores.

Other data were obtained by means of two questionnaires—one for the film group and the second for the printed-materials group—to determine both the amount of pupil interest and pupils' estimates of the lessons' value. These questionnaires

TABLE V

Pupils' Reactions to Questionnaire Items on Interest and Values

Reactions	Interest				Values			
	Film Group		Printed-Materials Group		Film Group		Printed-Materials Group	
	N	Per Cent	*N*	Per Cent	*N*	Per Cent	*N*	Per Cent
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
a	287	66.3	79	45.4	212	48.8	65	37.4
b	119	27.5	63	36.2	191	43.9	79	45.4
c	21	4.8	12	6.9	25	5.7	20	11.5
d	6	1.4	20	11.5	7	1.6	10	5.7

were alike except that the first differentiated between the filmed lessons and the supplementary materials presented by the classroom teacher while the other did not make this distinction.

Each pupil selected one of four possible reactions which best described his feelings toward a given statement. Through the use of an *a-b-c-d* scale, he indicated how positive his feelings were—*a* being most positive, *d* most negative. The pupils' reactions to items directly pertaining to interest in oral arithmetic are shown in Table V.

Apparently most of the children in each group were interested in the oral-arithmetic series on addition. The responses of the film group, however, were slightly more favorable than those of the printed-materials group: 94 and 82 per cent, respectively. Twelve per cent more pupils in the printed-materials group checked the negative responses.

Pupils' reactions pertaining to values, measured on the same scale, also appear in Table V. These results are similar to those for interest. Positive reactions were reported by 93 and 83 per

cent of the film and printed-materials groups, respectively; negative reactions, by 7 and 17 per cent, respectively. Thus, the film group reported more interest and value derived than the printed-materials group. Both oral-teaching methods, however, appear to be effective.

CERTAIN other assumptions that are indirectly based on the data may be made. First, the filmed presentation of the oral-arithmetic series appears to provide elementary-school teachers with meticulously prepared materials which utilize available arithmetic time more effectively than traditional classroom procedures without sacrificing pupil achievement. Furthermore, the filmed procedure offers classroom teachers an opportunity to use alternate instructional procedures with a minimum of actual preparation on their part. Both of the procedures used, however, did introduce new instructional ideas into the arithmetic program of the elementary school.

Most of the teachers who have seen one or more of the films used in this study showed keen interest in them for classroom use. In addition, most of the children who took part in the study wanted to have further non-pencil-and-paper instruction. Hence, the present task is to make the five oral-arithmetic films and printed materials generally available and to bring the series to the attention of more teachers.[5] Through the use of such materials, oral arithmetic can be made an effective and integral part of the instructional program.

[5] These films (and an accompanying teaching guide to be printed) may be obtained for a small rental fee from the Bureau of Audio-Visual Instruction, Extension Division, State University of Iowa, Iowa City, Iowa. Unfortunately, although there are complete printed materials for teaching all eighteen lessons on addition, provision has not as yet been made for their reproduction and distribution in quantity.

The Validity of the SSHA with Scholastic Overachievers and Underachievers

By W. JAMES POPHAM

Mr. Popham is assistant professor of education at San Francisco State College.

THE Brown-Holtzman *Survey of Study Habits and Attitudes* (SSHA) was developed in an effort to discover why some students with high scholastic aptitude fail to achieve academic success in college while others with only mediocre aptitude do very well. The instrument purports to be an easily administered measure of study methods, motivation for studying, and certain attitudes toward scholastic activities important in the classroom.

Evidence to support the use of the SSHA with scholastic overachievers and underachievers has been drawn largely from the fact that positive correlations between students' SSHA scores and grades have been consistently greater than correlations between students' SSHA scores and measures of academic aptitude, such as the American Council on Education Psychological Examination (ACE). The present investigation is a further attempt to validate the SSHA for use with scholastic overachievers and underachievers by assessing the difference between mean SSHA scores of college students who have been so identified *prior* to the administration of the instrument.

THE SSHA is a self-report inventory consisting of seventy-five five-choice items which concern study attitudes and study mechanics. A counseling key which identifies item responses that differ from those given by students of high scholastic achievement is available.

Subjects were selected from the 405 college Sophomores regularly enrolled at Kansas State College of Pittsburg during the second semester, 1958–59. For each student in the sophomore class, an honor point ratio (HPR) based on grades earned during the preceding semester was computed. Each Sophomore's total score on the ACE was also obtained. The HPR and ACE scores were then transformed into standard scores on the basis of data for the sophomore class.

Students whose HPR standard scores exceeded their ACE standard scores by at least one standard deviation were designated as overachievers; those whose ACE scores exceeded their HPR scores by at least one standard deviation, as underachievers. From the entire sophomore class of 405 students, 59 were identified as overachievers and 44 as underachievers.

Subjects were requested by mail to report to a central office where the SSHA was to be administered. Three follow-up requests were sent to those who failed to respond. Finally, the students who had not responded to any of these were personally requested to fill out the inventory. As a result of this procedure, all 103 subjects completed the test.

Because the SSHA standardized norms differ for men and women, the initial analysis involved testing the significance of mean difference between sexes. Since no significant differences were found, both men and women were included in the final analysis.

The mean SSHA score for the overachievers (37.86) was significantly greater than the mean SSHA score for the underachievers (32.68). The standard deviation for the former was 12.96 and for the latter 12.04. The resulting t value, 2.09, was significant beyond the .05 level of confidence. It should be noted, however, that the value of the test as a counseling device was not considered.

Results of this study tend to confirm the value of the SSHA when used with college overachievers and underachievers. The approach adopted in the present investigation differs from earlier validation studies of the SSHA in that two groups which were previously identified as scholastic overachievers and underachievers were given the test. In earlier studies the criterion has generally been scholastic achievement *per se* rather than scholastic overachievement and underachievement.

EDITORIAL COMMENT

A Highly Promising Program

THE Visiting Scientists Program, recently announced by the Ohio Academy of Science, holds great promise for the advancement of education in the state.[1] Under this program, the Academy, on request from high schools, will make available the services of highly qualified scientists for periods up to three days. This will be without cost to the schools: the Academy will pay expenses and honoraria from a grant provided by the National Science Foundation.[2]

The Academy's purpose in setting up the program is not to dictate, or "sell a bill of goods," to the high schools; it is to help in improving instruction in science in the ways that the schools desire. The announcement of the program reads:

> . . . the Visiting Scientists are not curriculum experts or specialists in the operation of our public, private, and parochial schools. While they want to assist in any way possible, their principal role is one of providing scientific information and not one of attempting to promote any special program or of promoting science at the expense of any other important part of the total school program.

Moreover,

> Only professional scientists and educators of recognized competence will be selected. They will be selected on the basis of the excellence of the contribution they can make, their willingness to participate in the program, as well as the readiness of their home institution[s] to cooperate in the program. The geographical distribution of the scientists will also enter into their final selection, to permit the best coverage for a particular program.

It is expected that, among other activities, the Visiting Scientists will serve as speakers before science clubs and other student groups, participants in panel discussions, and consultants to faculty members and students with a special interest in science.

[1] The writer is indebted to Kenneth B. Hobbs, executive secretary of the Ohio Academy of Science, who kindly provided much of the information upon which this editorial is based. Mr. Hobbs, of course, is not responsible for the opinions expressed here or for any factual errors.

[2] This is one of some half-dozen programs of this kind under the auspices of state scientific societies.

The chairman and program director is W. A. Manuel, professor of chemistry, emeritus, at Ohio Wesleyan University. He will be assisted by a steering committee of eleven members of the Ohio Academy, representing several different science fields. This committee will select the Visiting Scientists from among those who request appointment. At the time this was written, ninety-two persons from various science fields had applied; the number of schools that desired to participate in the program was not known, since the blanks to be used for requesting the service of Visiting Scientists had just been mailed. No doubt there will be a heavy response.

IT IS difficult to imagine any program of comparable cost and scope that would hold greater promise for the improvement of secondary education in the state. If this program works out as hoped, it will do much to enrich the science offerings of the schools and to develop intelligent interest in science on the part of pupils. What it actually accomplishes will depend upon the way it is carried out and particularly upon the qualifications of the scientists selected by the steering committee.

The program properly makes "recognized competence" in science, together with a desire to participate, a requirement for selection. This is necessary but not sufficient for the highest quality of service. The Visiting Scientists should not be narrow-minded special pleaders but persons with a broad understanding of the place of scientific study and research in our culture and an intelligent appreciation of the importance of the nonscience disciplines. They should be capable of a sympathetic understanding of the problems of high-school teachers, and, above all, they should be eager to learn as well as to teach. Here as elsewhere, consciousness of ignorance is the beginning of wisdom.

We congratulate the Ohio Academy of Science on its initiation of this program and hope that our high schools will make the fullest and best possible use of the opportunities it offers.

R. H. E.

READINGS

Books to Read

McPherson, Robert G. *Theory of Higher Education in Nineteenth-Century England.* Athens, Georgia: University of Georgia Press, 1959. viii + 128 pp. (University of Georgia Monographs, No. 4).

This monograph from the University of Georgia concerns the evolution of the concept of classical education in nineteenth-century England. Mr. McPherson, a member of the University's Department of History, has drawn from the works of five dominant educators of the time to illustrate how the gradual modification of the classical ideal resulted in its near-complete transformation.

Edward Copleston, Provost of Oriel College, Oxford, at the time of Waterloo, was one of the foremost advocates of this ideal. He believed that only through a curriculum composed of the classical languages and literature, mathematics, and theology, could the universities inculcate a "disciplined intellect, capable of solving any problem of life" (page 17). Far from being useless, this type of education was considered to be the most practical training the true English gentleman could obtain. It is here that the Benthamites and other reformers of the day differed from their more conservative contemporaries. Brougham, Place, Birkbeck, and others held that the only way a student could prepare himself for the "business of getting a living" (page 30) was to study the modern world around him, that is, science and modern languages.

An attempt at compromising these two extreme positions is seen in the work of William Whewell, Master of Trinity College, Cambridge. Whewell believed that in addition to the "permanent studies" of mathematics and the classics, a student should have the opportunity to investigate some of the more "progressive" subjects, at least at the graduate level. John Henry Newman, upholder of traditional education par excellence, synthesized the ideas of his predecessors and presented them as an enduring defense of the Oxford and Cambridge system.

A disciple of Newman, Mark Pattison, was perhaps the first to make a sharp break with the traditional school of thought. While holding to the basic concept that education should aim at developing the "latent intellectual facilities" (page 69) of the individual, Pattison believed that the means of attaining this end should be much broader. Later Henry Sidgwick carried these ideas even further in attempting to effect a balance between humanistic education and the needs of a complex industrial society.

An otherwise fine monograph is marred slightly by a confusion of terminology. What precisely *is* liberal education? To say that it "should be understood to refer to that essentially humanistic preparation for life

obtainable in Oxford and Cambridge in the early years of the century" (page 1) does not *define* the term for the reader. To use "classical education" and "traditional humanistic education" synonymously with liberal education only adds to the confusion. Still this is a somewhat unfair criticism to level at the author. Liberal education is one of the least understood and most overused terms in educational circles today, and one short work cannot be expected to clear up decades of misunderstanding. We might have hoped for an attempt, though.

ROBERT R. WELLMAN

HUEBENER, THEODORE. *How to Teach Foreign Languages Effectively*. New York: New York University Press, 1959. x + 198 pp.

Mr. Huebener states in the Preface of his book that his primary purpose is to offer practical suggestions to foreign-language teachers so that their classroom activities will create interest and enjoyment in the learning of foreign languages. He succeeds admirably in this objective. The book presents copious lesson plans with many and varied dialogues, games, cultural activities, plays, material for language clubs, and techniques for the teaching of vocabulary, grammar, reading, writing, and conversation. Another attractive feature is the bibliography on resource materials, *realia,* and methodology.

Although the author does not intend to discuss the psychology of language learning in great depth, he does set down some concepts that are very valuable. For example, he writes:

> The most important and fundamental consideration is this: many of the grammatical forms taught need only be recognized by the student for the purpose of comprehending the written or the spoken language. To have the pupils attain skill in reading quickly and effectively, it is unnecessary to have them write out reams of translation exercises from one language into the other. The ability to spell every word correctly is not absolutely necessary for reading comprehension (page 97).

In another place he points out the limitations of paradigms and conjugations: "A more natural situation is approximated if the conjugation or declension is given in an entire sentence" (page 99). Probably his best theory is this: "The memorizing of the rule and the understanding of the grammatical point are not sufficient. *Fixation comes only through practice in the appropriate situation*" (page 99).

However, these excellent, up-to-date theories advanced by Mr. Huebener often are not translated into sound practice. For example, he uses an extremely traditional approach in the presentation of verb forms. He puts a conjugation of a verb in English on the board, translates it into the foreign language, and has the pupils recite the conjugations. There is far too much attention given to word study, etymology, and Latin derivatives. Only one and a half pages are devoted to the language laboratory. And finally, in a period when so much is being said and written about the audio-lingual approach, the author devotes too much of his time to the

teaching of reading and writing. In spite of these weaknesses, foreign-language teachers should find the book helpful in planning their class activities, since many varied and meaningful learning experiences are included.

EDWARD D. ALLEN

AHMANN, J. STANLEY, AND GLOCK, MARVIN D. *Evaluating Pupil Growth.* Boston: Allyn and Bacon, 1958. xiv + 606 pp.

This book is intended as a textbook for a first course in evaluation and measurement. It is divided into four parts: Part One, "Evaluation in Education," is a general consideration of the concept of evaluation and its role in education; Part Two, "Characteristics of a Good Evaluation Instrument," is concerned with the validity and reliability of tests and the means of evaluating particular instruments in terms of these concepts; Part Three, "Informal Methods of Evaluating Achievement," is devoted to a discussion of teacher-made tests in a number of areas of school work; Part Four, "Evaluating Pupil Behavior and Improving Learning," deals with standardized tests and the uses made of these instruments in the diagnosis and remediation of school problems.

In writing this book, the authors adhered to three assumptions that help make it a very practical textbook. First, it was assumed that the reader would have had no experience whatsoever in the field of evaluation. Consequently, the most basic points are treated in great detail and numerous examples are provided from many types of school situations. For example, in the discussion on evaluating pupil procedures and products, the illustrations cited range from how to evaluate an English theme (page 335) to how to rate a batting stance on the softball diamond (page 328). A second assumption is that statistical procedures are best understood when a need for them has been established. Accordingly, the statistical procedures commonly presented in introductory textbooks on evaluation are not grouped but are presented throughout the book within the context of concrete problems raised by the authors. Their third assumption is that a classroom teacher must be thoroughly familiar with the concepts of validity and reliability before he can construct his own evaluation instruments or select appropriate commercial instruments. For this reason, more than fifty pages are devoted to a detailed discussion of these concepts. Like most of the chapters in this book, those on validity and reliability are written to assist the teacher to make practical use of the material in the classroom.

The excellent summaries at the end of each chapter are followed by annotated lists of suggested readings. The appendixes contain a list of the publishers and distributors of standardized evaluation instruments and a selected list of standardized tests in the areas of achievement, aptitude, and personal-social adjustment. An annoying factor is that references are not placed at the bottom of the page but at the end of the book.

This book is well suited to the purpose for which it is intended and should help instructors give students a sound understanding of the basic principles of evaluation. Indeed it seems to be appropriate as a textbook or reference in the many guidance institutes sponsored in conjunction with the National Defense Education Act. The principles and illustrations presented should help teachers identify and work with talented students in the schools of the nation.

ANTHONY C. RICCIO
University of Notre Dame

ASHBY, ERIC. *Technology and the Academics: an Essay on Universities and the Scientific Revolution.* New York: St. Martin's Press, 1958. viii + 118 pp.

This is a delightful analysis of the impact of science and technology on the English universities over the last three hundred years. Its five chapters are devoted to "Science Beyond the Channel," "Science Crosses the Channel," "Technology Adopted," "Split Personality in Universities," and "A Postscript on Self-government in Civic Universities." The substance of the essays is taken from a series of Ballard-Matthews Lectures delivered at University College of North Wales in January, 1958. The excerpts that follow indicate their informative and analytical character.

"The history of this scientific revolution [the age of Kepler, Galileo, Harvey, and Newton] lies almost completely outside the universities" (page 4). "Even at the threshold of the nineteenth century, 113 years after the publication of Newton's *Principia,* institutions for higher education in Britain were still making practically no contribution to scientific thought. . . . They reflected yesterday: they did not illuminate tomorrow" (page 6). "France was the mother of organised scientific research. She was the first country to encourage the practice of experimental science on a large scale, systematically, and the first country to realise that . . . scientific work must not only be organised, it must also be summarised and propagated" (page 19).

"The scientific spirit was unable to cross the Channel; but it did cross the Rhine, and it found in Germany a uniquely appropriate intellectual climate" (page 20). "By the middle of the nineteenth century, the universities of Germany had adapted themselves wonderfully to the scientific age" (page 27).

"By this time—mid-century—the British universities were [also] at long last ready to accept the scientific revolution and to adapt themselves to its consequences" (page 27). "Utilitarians and Dissenters were showing a growing disquiet at the inadequacy of Oxford and Cambridge to meet the nation's needs [for curriculums in science]. The first practical outcome of this disquiet was the foundation in 1826 of the University of London" (page 29). "But there was another formidable obstacle, arising from the very absence of a philosophical attitude toward science . . . ."

(page 30). "It is not surprising therefore, that proselytisers of science were tempted to advocate it on the grounds of its utility rather than for its own sake" (page 31).

"By the 1870's the inoculation from Germany had 'taken'. The English universities . . . began to produce a new kind of graduate: the specialist" (page 38). "Thus—after a long lag—did British universities adapt themselves to the scientific revolution" (page 40).

Mr. Ashby suggests the two major changes that can be attributed largely to the influence of scientific thought: the reunion of higher education and discovery, that is, "the dismissal of dogmatism and the acceptance of knowledge as an open system. . . . [and] the restoration of a cosmopolitan spirit among universities" (page 44).

The author then discusses the development of technological education: the rise of the mechanics' institutes in Britain, the *Ecole Polytechnique* in France, the *Technische Hochschulen* in Germany, and the Massachusetts Institute of Technology in the United States. Although technological education has been increasing, "the attitude of universities toward technology is still ambiguous; until the ambiguity is resolved the universities will not have adapted themselves to one of the major consequences of the scientific revolution" (page 66).

"The antithesis," Mr. Ashby continues, "between science and humanism has almost vanished, but it has been replaced by . . . debates on specialisation versus a liberal education" (page 77). "What, then, is missing in a scientific or technological education?" (page 83). The author quotes from Alfred North Whitehead: "When you understand all about the sun and all about the atmosphere and all about the rotation of the earth, you may still miss the radiance of the sunset" (page 83).

This little book gives a good picture of the evolution of the notion of the university in the last several centuries. The reader can extrapolate the analysis and gain insight into the causes of many of the undercurrents and philosophies of American schools of higher learning.

A. B. GARRETT

CLARK, LEONARD H., AND STARR, IRVING S. *Secondary School Teaching Methods*. New York: Macmillan Company, 1959. xii + 340 pp.

The authors of this book have as their major purpose to present in a practical and useful fashion the general methods of secondary-school teaching. They attempt to keep discussions of educational and learning theory to a minimum and to describe techniques suitable for use by beginning teachers in middle-of-the-road schools. They have accomplished this goal, and their book reflects the strengths and weaknesses inherent in such an objective. It is an appropriate illustration of Lincoln's judgment of a book: "People who like this sort of thing will find this the sort of thing they like."

The book includes chapters on such topics as "What is Teaching?"; "Motivation"; "Planning for Teaching"; "Some Specific Teaching Tech-

niques"; "The Materials of Instruction"; "Evaluation"; "Discipline"; "The Teacher and Extra-Class Responsibilities." It is written to be meaningful to the unsophisticated undergraduate, but is apt to leave the more serious student wondering about some of the underlying assumptions, as the following excerpt illustrates:

> When punishment is used, it should be swift, sure, and impressive. The teacher should never punish on impulse . . . but he should act at once. Should he himself become emotional, however, he would do well to calm down before prescribing the punishment (page 265).

In a sense the volume is prescriptive rather than descriptive. The student is challenged by the thought-provoking questions which are interspersed throughout each chapter, but he may find that the repetitive bibliography and lack of documentation hinder further inquiry. The reader will find little help in building a frame of reference for creating his own teaching techniques, but he will discover a rather detailed analysis of the authors' chosen devices. This is illustrated by the following subheadings which appear on pages 113 to 119 under the major heading "Using Questions": "Uses of questions," "The good question," "A pre-requisite to good questioning," "Techniques of good questioning," "Handling pupil answers," and "Handling pupil questions."

Secondary School Teaching Methods is an easily read how-to-do-it book which has particular value to the beginning student of methodology and to the person who is seeking answers rather than means for obtaining them.

FREDERICK R. CYPHERT

GOLTRY, T. KEITH, AND DEWEY, JOSEPH C. *A Guidebook in Observation and Student Teaching: Elementary Level.* Minneapolis, Minnesota: Burgess Publishing Company, 1958. 136 pp.

Goltry and Dewey have produced a workbook which can guide student teachers through the multitude of tasks involved in observing and teaching girls and boys. Twenty-one units covering such topics as "Learning to Know the Pupil" and "Methods of Caring for Individual Differences" are carefully detailed and well organized. Space is provided for the student teachers to answer questions and record observations.

Teacher-student co-operation is referred to directly throughout the units; it is cleverly encouraged in Unit III on "Planning for Teaching." Suggestions afford opportunities for the student to study the teacher's plans, to confer with her about long-range and daily programs, to reach some conclusions about planning, and actually to make some plans himself. This guidance can be extremely helpful in preventing the young student teacher from falling into the too common error of thinking that there is no need to *plan* in teaching.

Unit V reveals the myriad activities which make up routine classroom life. These are the items which students new in methods courses call "trivialities," "a waste of time," "stuff we can find out for ourselves

as we go along." They are, in reality, the techniques which are necessary for classroom control and management and which the same students recognize as vital when they find themselves in charge of a class.

Many parents complain that children do not know how to study. One reason offered here is that pupils do not recognize *when they are studying.* The student teacher, guided through Unit VII and working directly with children, has impressed on him the importance of study techniques and the need to teach them to children. The child's recognition of his own most effective methods for studying should be a primary concern of the student. Emphasis on this vital but neglected part of the teaching job is quite valuable.

In the subject-matter areas, the student teacher is stimulated by thought-provoking questions and ideas for practical projects. A rating chart provides a means for self-evaluation in light of school experiences and aspirations.

Throughout the book the authors have done a thorough, efficient, and imaginative job in the cause of sound learning and effective expression.

VERA MACKAY
University of British Columbia

Curriculum Research: Status, Needs, and Prospects

[*Continued from page 205*]

their interest and capabilities on broad curriculum problems, is promising. ASCD has under way a Cooperative Action Program for Curriculum Improvement which is exploring possibilities of active sponsorship for field research studies.

The time is ripe for university and professional groups to undertake a thorough appraisal of the status of curriculum research; map out a comprehensive research program which will attack meaningful instructional problems with rigor and contribute to building sounder curriculum theory; and support efforts to locate and train curriculum researchers more systematically.

The prospects for curriculum research are bright if we have enough insight and initiative to capitalize on the mood of the times to build more comprehensive, long-range, significant studies, utilizing the resources of the chief professional organizations, the universities, the state departments of education, and local school systems. Major breakthroughs are now possible through the use of leadership and resources at all educational levels.

RECENT PUBLICATIONS

OF THE COLLEGE OF EDUCATION AND
THE BUREAU OF EDUCATIONAL RESEARCH AND SERVICE

Social Status and Leadership: The Case of the School Executive.

By MELVIN SEEMAN. Educational Research Monographs, Number 35. xiv + 149 pp. 1960. $4.00, cloth; $3.00, paper.

In this study the author examines leadership in the schools by using rigorous empirical techniques but interpreting his data in broad terms.

The College of Education Style Manual. Revised Edition.

By SHIRLEY LIPSON AND ANNE W. ABRAMS. vi + 18 pp. 1960. 25 cents.

This new edition expands much of the information found in the original Manual. It is intended primarily for use in preparing the research paper, but a substantial portion is devoted to rules of capitalization and punctuation. High-school students may find many of the suggestions useful.

"I Can Read It Myself!" Some Books for Independent Reading in the Primary Grades.

By FRIEDA M. HELLER. Study of Independent Reading, Bulletin 1. iv + 31 pp. $1.00.

The librarian of the Ohio State University School has prepared an annotated list of books arranged according to three levels of difficulty.

Exploring Independent Reading in the Primary Grades.

By ESTHER E. SCHATZ AND OTHERS. Study of Independent Reading, Bulletin II. vi + 70 pp. $1.00.

This Bulletin presents exploratory investigations of problems arising when children in the first three grades choose their own reading materials.

Orders should be addressed to Publications Office, Ohio State University, 242 W. 18th Avenue, Columbus 10, Ohio.